

- 1 1. A method comprising:
2 forming a phase change material between a pair of
3 horizontally spaced electrodes.
- 1 2. The method of claim 1 including enabling light to
2 access said phase change material.
- 1 3. The method of claim 1 including forming a
2 conductive line in a substrate and forming said material
3 and said electrodes over said substrate.
- 1 4. The method of claim 3 including forming a
2 selection device in said substrate.
- 1 5. The method of claim 4 including forming a
2 electrical connection from said substrate to a second
3 electrode.
- 1 6. The method of claim 5 including electrically
2 coupling said second electrode to one of said horizontally
3 displaced electrodes.
- 1 7. The method of claim 1 including covering at least
2 a portion of said phase change material with an optically
3 transmissive material.

1 8. The method of claim 1 including forming two pairs
2 of electrodes for two spaced cells at the same time.

1 9. The method of claim 8 including depositing a
2 material to form said electrodes in a trench.

1 10. The method of claim 9 including clearing the
2 bottom of the trench to separate said electrodes and
3 filling the remaining portion of said trench with the phase
4 change material.

1 11. The method of claim 1 including covering said
2 phase change material with a light transmissive material.

1 12. A memory comprising:
2 a pair of horizontally spaced electrodes; and
3 a phase change material between said pair of
4 horizontally spaced electrodes.

1 13. The memory of claim 12 wherein said spaced
2 electrodes and said phase change material are formed over a
3 substrate having a horizontally disposed upper surface.

1 14. The memory of claim 12 including a light
2 transmissive material over said phase change material.

1 15. The memory of claim 14 wherein said light
2 transmissive material is a non-switching high bandgap, and
3 electrically insulating chalcogenide material.

1 16. The memory of claim 12 wherein said phase change
2 material is a chalcogenide material.

1 17. The memory of claim 12 wherein said spaced
2 electrodes sandwich the phase change material, one of said
3 spaced electrodes being shorter than the other of said
4 electrodes, an optically transmissive material contacting
5 the shorter of said spaced electrodes and said phase change
6 material.

1 18. The memory of claim 17 wherein said phase change
2 material is sandwiched laterally between parallel plate
3 electrodes.

1 19. The memory of claim 18 including a substrate and
2 a selection device in said substrate, said selection device
3 coupled to a second electrode above said substrate, said
4 second electrode coupled to a conductive material in turn
5 coupled to the shorter of said spaced electrodes.

1 20. The memory of claim 17 including a pair of cells
2 positioned side by side, each cell including said
3 horizontally spaced electrodes with a phase change material
4 between said electrodes, an optically transparent material
5 arranged so as to extend over the phase change material
6 memory of each cell, said cells being separated by an
7 insulating material.

1 21. The memory of claim 20 wherein each cell includes
2 a conductor coupled to a selection device in said
3 substrate, each conductor in turn coupled to an
4 electrically conductive via that couples said conductor to
5 the shorter of said spaced electrodes.

1 22. A system comprising:
2 a controller;
3 a wireless interface coupled to said processor-
4 based device; and
5 a semiconductor memory coupled to said device,
6 said memory including a phase change material and a pair of
7 horizontally spaced electrodes sandwiching said phase
8 change material.

1 23. The system of claim 22 wherein said phase change
2 material is a chalcogenide.

1 24. The system of claim 22 wherein said spaced
2 electrodes and said phase change material are formed over a
3 substrate having a horizontally disposed upper surface.

1 25. The system of claim 22 including a light
2 transmissive material over said phase change material.

1 26. The system of claim 22 wherein said wireless
2 antenna includes a dipole antenna.